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Does Better Access to Contraceptives Increase their Use?

Key Policy and Methodological Issues

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The only consistently significant results available on whether access to contraceptives increases their use relate to the density of access: the more sources users have access to, the more they seem to use contraceptives. Better data are needed on other measures of access.

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This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — is part of a larger effort in PRE to examine the impediments to contraceptive use and fertility decline in different environments. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Otilia Nadora, room 6-065, extension 31091 (30 pages).

Conclusions vary about whether people use contraceptives more when they are more accessible — partly because of differences in case studies and partly because of differences in methodologies and measures of access. Generally analysts conclude that access is important, which is important for policy, since increasing access to contraception is the most direct intervention available for increasing the use of contraceptives.

In Africa, in particular — where fertility began to be reduced only in the last five years — it is important to study the effect on contraceptive use of targeting family planning services to motivated families.

Cochrane and Gibney, in their review of 49 case studies in the literature, found highly inconclusive results on the question of whether a particular measure of access — or methods of estimating those measures — influence findings on the relationship between access to and use of contraception.

Perceived and actual measures of access did not show different effects, and evidence was also inconclusive on whether the choice of independent variables — travel time, distance to source, access to personnel, density of sources, and costs — influences the results.

All the findings about density of outlets were significant. This suggests that access measures that focus on the nearest outlet are less useful than those that measure distance or travel time to a number of outlets.

Cochrane and Gibney emphasize that differences in travel time or distance to an outlet may not be as important an influence on conceptive use once a population has reached a threshold level of access.

But generally the quality of the data available is poor, partly because data collectors were poorly trained. Moreover, the relationship between measures of access and use may be different from what researchers expect. Rather than the location of family planning outlets influencing the demand for and use of contraceptives, it may be that demand for contraceptives determines the location of outlets.

Analysis of the effects of access must first be based on a coherent theoretical framework. It must also include a richer measurement of the quality of services.

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The Effect of Access to Contraception on Use: Key Policy and Methodological Issues

by
Susan H. Cochrane
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The effect of community characteristics, in general, and access to family planning services, in particular, on contraceptive use has received considerable attention in the literature, for several reasons. First, from a policy perspective, increasing access to contraception is the most direct intervention available for increasing use. Second, from the perspective of the sociology of fertility, community variables affecting access, such as the number of family planning clinics in or near the community, are frequently examined because they are thought to be the means by which group factors influence the behavior of individual members. And, third, economists, who see many decisions as being simultaneously determined, are often in search of independent variables which are not determined by other individual decisions (exogenous variables) to explain behavior (identify models); furthermore, community variables are more likely to be exogenous than are observations of the individual's own characteristics or behavior.

There have been four major reviews of the literature on the effect of access on contraceptive use (Tsui 1985; Boulier 1985; Bilsborrow and Guilkey 1987; and Tsui and Ochoa 1989). These reviews differ in their conclusions about the consistency with which access affects use, in part because of differences in the case studies they surveyed and in part because the studies selected used a variety of methodologies and measures of access. Table 1 summarizes their diverse findings. These review articles conclude that in many cases access is important. The exact role, however, can not be determined until appropriate models of the truly exogenous variables can be identified (Bilsborrow and Guilkey (1987) and it is not possible to identify the distributional consequences of increased access to family planning (Boulier (1985).

An independent examination of 49 case studies included in these various review articles demonstrated that 22 of the 49 cases showed significant effects of access or expected relationships. Twenty-five found mixed findings and two showed either no significance or no relationship. Table 2 summarizes these forty-nine studies. This suggests that there are probably real differences in

when access will or will not matter, which are reflected in the literature reviewed. When demand for family planning is very low, or when the service network is very dense, it is unlikely that observable differences in access will have significant effects on use. Furthermore, the use of some permanent or long acting methods, such as the IUD and especially sterilization, are very insensitive to access. In countries where these methods predominate, access is likely to be less significant a factor than in countries where more temporary methods are widely used. Where contraceptive use is very low, it will be difficult to observe significant findings unless very large data sets are available. These and related issues of methodology will be reviewed after a discussion of the relevant policy issues that could be illuminated if we had better knowledge of the effect of access on contraceptive use.

This paper reviews these policy issues and the methodological issues that need to be clarified in order to arrive at answers to policy questions. These policy issues range from whether strong programs are necessary or sufficient for the reduction of fertility to how such programs should be targeted for equity and efficiency objectives and which elements of program input are more cost effective. In this article, we discuss these issues and from our review of forty-nine analyses of the effect of access draw conclusions about the findings to date and the future agenda for research.

Policy Issues

There are several "generations" of policy issues that have been or could be addressed by looking at contraceptive access and use. The first generation of questions, which arose in discussions of how to stimulate fertility decline in developing countries, was whether family planning programs can accelerate the process of decline[1]. The second generation of questions surround the issue of which interventions are most effective or cost effective under various

[1] In its most extreme forms, there were some who claimed that access was necessary and sufficient and others that maintained that it was not necessary. Very few people take positions at either extreme today.

circumstances. This includes issues of appropriate targeting of interventions which can be labeled as a third generation issue.

The first generation of questions arose at the 1974 World Population Conference, where many African and Latin American countries maintained that development was the most effective means of reducing fertility. This attitude was reinforced by investigators who interpreted the fertility transition in the West as evidence that access to modern contraceptives was not essential for fertility decline. (2) At the other extreme were those who maintained that access to family planning services was, by itself, sufficient to produce a decline of fertility in any environment.

Between these extremes were those who attempted to tease out evidence on the extent to which access to contraception increased its use or, more heroically, whether access lowered fertility. Ideally, experimental programs could have been developed to test whether access mattered. Though some such programs were undertaken, principally in India and Bangladesh, they were expensive and time consuming, and thus could not be widely replicated in different settings to determine if the effect of access differed from place to place. As a short cut, cross sectional analysis of "natural experiments" (3) were undertaken in several forms. A considerable amount of analysis was done using cross national data on level of development and program strength (Mauldin and Lapham 1982). Although this work was informative, a country's level of development tended to be highly correlated with the level of program effort, and it was difficult to sort out the effects of the two factors. An alternative was to make in-country comparisons of individuals' access to contraception with their utilization of it. These are the case studies reviewed in this article.

As will be seen, these studies show that access matters in some cases, but not in others, and that no systematic study has been able to illuminate exactly when it does matter. To some extent, research was overtaken by events; high

levels of contraceptive use and impressive reductions in fertility have been achieved in a number of countries with strong public or mixed public and private provision of family planning. Thus, to some degree, history has proven that even in countries with fairly low levels of development, such as Indonesia and Sri Lanka, not to mention the more ambiguous case of China, fertility reduction is possible with a good program.

The first generation questions continue to be of importance in sub-Saharan Africa, however, because up until the last five years the region had failed to show any reductions in fertility despite heavy investment in family planning in Kenya and more modest investments elsewhere. The relevant question here is, not whether family planning programs are necessary or sufficient to produce a decline in fertility, but to what extent they can stimulate fertility decline and under what circumstances.

This first generation question is really one of the importance of the demand for family planning compared with its supply. In a wide variety of countries, demand probably constrains some individuals in their use of contraception and supply of services constrains others. The relative importance of these two constraints determines the effectiveness of family planning programs and of programs to increase demand through information, communication, and education activities or interventions to improve development and the status of women and children. Thus, for Africa given the low levels of demand to restrict fertility, the first generation question still needs attention. At this stage, is it useful to provide family planning or to focus on other interventions which will stimulate the demand to restrict fertility? If any family planning is to be introduced, how should it be targeted? This latter question is dealt with below.

The second generation questions seek to determine what specific elements of program design matter. Is it access to clinics or to community-based

distribution of non-clinic contraceptives that matters? Are the monetary costs of methods a constraint, and if not, could fees be used for cost recovery? Are clinic hours a constraint? These design questions are much more clearly specific to both the population served and the program design. Global answers are only of use to the extent that they qualify which sorts of interventions seem to be effective under which circumstances. Some design questions have been addressed through operations research projects similar to those sponsored by USAID. These projects have attempted to prove what will or will not work in specific environments to convince reluctant government officials that family planning can work in their area. There has been, however, little generalizable knowledge about how to tailor programs to local circumstances. The reason for this is that there has not been a grand design around which programs have been structured. Instead, the ad hoc requirements of the local environment have taken precedence. This is appropriate for an action program, but explains why we have not learned more that can be generalized.

A third policy issue is targeting of services to specific segments of the population. Targeting can be used to provide services to those who are particularly in need in some sense -- this is the focus of work on poverty alleviation and services at the periphery that currently demand World Bank attention -- or it can be used to direct services to those who are either most desirous of the program's benefits or slowest to take advantage of them. Since the poor are probably not monolithic in terms of whether they want specific programs, there are important trade-offs that have not been spelled out in the literature between the cost effectiveness of programs and the targeting of them to the poor. Equity considerations imply that services should be provided to the poor. If the poor are geographically remote or unmotivated or unable for various reasons to use the service, it will cost more per client to serve the poor. Thus, cost per user may be higher for the poor, and it would be more efficient to use the resources on the easier-to-reach and more motivated segments of the population. There are also trade-offs between long-term and short-term

effectiveness of programs that are positively or negatively targeted. The exact nature of those trade-offs depends on the degree to which access alone changes predisposing attitudes that later lead to changes in behavior.

Targeting issues are important in the analysis of the effect of access on contraceptive use for two reasons: First, in Latin America and some Asian countries, unmet demand for family planning is highest among the poor. Thus, the equity versus efficiency tradeoff may be less substantial in these countries.[2] Second, for countries within Africa and for individuals within specific countries, there may be an equity/efficiency trade-off in the provision of family planning due to low demand for family planning among the poor. Only if access to family planning itself reduces the demand for children would this trade-off cease to exist n the medium to long run. This is a major question that needs to be addressed by research.

Methodological Issues

Several important issues concerning the methodology used to analyze the effect of access on contraceptive use warrant attention. These include the design of survey samples; the statistical methodology; and the way in which access is defined and measured.

Sample Design

The principal issues pertaining to sample design that are apparent in the literature concern the appropriate number of clusters selected for study; the number of observations per cluster; the method of stratification of the sample; and the definition of the community or unit at which access data is collected.

•Design-Many surveys lack sufficient variability on the measure of access.

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[2] This is specifically addressing the issue of targeting the geographically well located poor who also demonstrate a high level of unmet demand. If the unmotivated population or the geographically remote are included in this perspective there would certainly be equity versus efficiency issues.

Greater variability could be achieved if indicators of community variables likely to be of particular interest, such as the density of family planning services, by type, were added to the set of stratifying variables, such as ethnic group, socioeconomic status or place of residence (Casterline, Entwisle, and Hermalin 1988).

•Number of clusters and individuals-In addition, the number of clusters or communities and the number of observations per cluster must be sufficiently large to obtain variability. Some investigators recommend 100 clusters, but this is not always possible, because the costs of surveys rise sharply with increases in clusters, especially rural clusters. There is less consensus among researchers on the number of households needed per cluster. Hermalin et al. (1988) used clusters that averaged as few as ten households in some studies with no apparent detrimental effects.

•Defining the community-Another design problem is the difficulty in defining the statistical unit that can represent access in a meaningful way. This is particularly a problem in urban areas and in rural areas where the population is dispersed. In urban areas, individuals have such wide access to diverse facilities that it is nearly impossible to identify meaningful measures of community access. Thus, most analysis of community access has focused exclusively on rural areas, which becomes problematic when settlements are dispersed, because access measures for the center of the community are less relevant for individual behavior than when villages are tightly nuclear. In such cases, some measures of dispersion of the population must be factored into the analysis.

Statistical Methodology

The principal issues regarding statistical methodology are the appropriate treatment of jointly determined and sequential decisions about the desire for additional children and contraceptive use; problems of the appropriate statistical methodology for the nature of the variables; and the fact that

measurement of access at the community level means that the households within any given community do not have independent observations and that therefore the coefficients on access may be biased.

•Channels of effect-A general question that needs to be resolved in modeling contraceptive use is what are the channels through which access affects other variables included in the equation that explains contraceptive use along with access? In other words, which variables are determined by access and also themselves affect contraceptive use. If both access and its channels of effect are included in an equation explaining contraceptive use, the measured effect of access will be diluted. Bilsborrow and Guilkey raise this issue in their literature review (see Table 1). The major problem arises from the variable representing the motivation to regulate fertility. The desire to have no more children, for example, depends on the number of children the respondent wants and the biological supply of living children to the couple, that is, the number of children the couple would have if they did nothing to control fertility. (See Easterlin and Crimmins (1985) If either the desired number of children or the biological supply of living children is affected by access to family planning, then, if the desire to have no more children is included as an explanatory variable in the equation explaining contraceptive use without appropriate simultaneous modeling, the effect of access alone on use will be underestimated and appear to be less important than it actually is.

Perhaps the single greatest statistical issue that needs to be addressed is how to incorporate elements of the demand for family planning. The desire for additional children has been used most commonly when a control for demand has been included, but there is little consensus on whether it is appropriately included in the model. The effect of access on fertility must clearly incorporate considerations of its effect on family size desires and the desire for additional children, but there has not been uniform treatment of this issue in the literature. This issue is not just a methodological nicety, but also has important implications for whether and how programs should be targeted.

Defining and Measuring Access

The definition and measurement of access constitute a major problem in the literature. Access has been measured in a variety of ways, including distance or travel time to family planning outlets, knowledge of a source of contraceptives, the number of clinics in the community, the frequency of visits by family planning personnel, the number of family planning personnel serving a population, and the availability of supplies. These definitions of access are confounded by the concept of cost to the user of contraceptive use, which includes the price of contraceptives, the time and expense entailed in obtaining a method, and the psychological cost, if any, of use. To the extent possible, analyses of the relationship between access and use should include all measures of the costs of use in their concept of access.

•Perceived measures of accessibility- There has been substantial debate in the literature over whether access should be measured by the individual's responses to survey questions or by objective reports by community officials or the survey team. Obviously, it is the individual's perceptions that affect their behavior; however, policy can only address community availability. Moreover, the individual's perceptions are not a reliable measure of access since to some degree they are influenced by actual use of contraception. Studies have found, for example, that current users generally report the source of their current method accurately, but that ever-users may be less accurate in identifying their last source, and never-users are unlikely to be able to accurately report distance or travel time to obtain any method. In addition, respondents may report a preferred source rather than the closest source, and may fail to mention certain types of sources, such as shops, pharmacies and family planning field workers.

Furthermore, studies that use perceived access and, as many do, exclude from the analysis women who do not know a source, may contain a built-in bias by systematically excluding part of the population, since women who are inclined to recognize and report the availability of services are likely to be those who are also motivated to practice family planning. Moreover, while perceived access can

be predicted from objective access, the reverse may not be true (see Hermalin 1983). As a consequence of these drawbacks with subjective access measures, some investigators advocate the use of actual measures and urge that findings from studies using subjective availability be interpreted cautiously (Tsui and Ochoa 1989).

•Actual measures of availability-Actual measures of availability may also be problematic, however. A facility may exist but not offer its services to all members of the community; a family planning clinic may refuse to provide services to teenagers, for example. Also, distance or travel time in a community survey is usually estimated in reference to the center of town or main crossroads, while the actual distance for an individual may be considerably different. Furthermore, community officials may not be the best sources of such data, and their information is frequently not verified by the survey team. In addition, living close to a family planning outlet is likely to make a difference only if the methods couples are using are available at the facility (Tsui and Ochoa 1989).

Despite problems with both subjective and objective measures of access, both are clearly relevant although for different purposes: perceived access may be measuring distance to a source a woman would choose to use, while actual access measures distance to the nearest source, which may or may not be one she would use. The analysis of the effect of actual access on perceptions of access is a topic of interest, but it seems essential that objective, community access measures be included along with perceptions. Two studies of Mexico and Korea illustrate the importance of using both measures: A bivariate study showed that perceptions of distances to services was not related to actual use of contraception (Chidambaram and Mastropoalo 1982), but a multivariate model of objective access measured at the community level showed significant effects on

use (Tsui et al. 1981).[3]

Evidence from the Case Studies

When we analyzed the forty-nine case studies reviewed in Table 2, we found that those using perceived availability had a higher proportion of significant and related findings and a lower proportion of mixed or nonsignificant findings than did studies using actual availability.(4) However, a chi-square test showed that there was no significant relationship between the way access was measured and findings on the effect of access on use.

•Distance or travel time- Perceived travel time to a source of contraception is the most commonly studied access measure. (Both the Contraceptive Prevalence Survey (CPS) and the World Fertility Survey (WFS) have asked respondents if they know a source of family planning and, if so, how long it takes them to travel to it.) Travel time may be seen as an indicator of cost, in terms of time diverted from other activities, or as a substitute for direct data on distance.

Several problems with the concept of travel time have been noted in the literature (Jones 1984). First, it may not be a good indicator of time expended if service at the outlet is inefficient, or, conversely, the journey may be made regularly for other purposes, such as going to market, and hence may entail no additional travel time to visit the contraceptive outlet. Moreover, with the introduction of community-based distribution systems, which bring contraceptive services directly to prospective clients, it may make little sense to assess accessibility in terms of travel time.

Case study findings on the relationship between perceived travel time and

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[3]It is difficult to discern whether this inconsistency reflects differences between the two surveys or simply reflects the difference between using a bivariate and a multivariate model.

contraceptive use range from significant with a large effect on use to significant with a weak effect to nonsignificant and unrelated (see Table 3). In Nepal, the proportion of urban and rural current users decreased as perceived travel time to an outlet increased, and differentials in current use by education and place of residence almost disappeared for women who had access to a family planning outlet within a half hour's travel time (Tuladhar 1987). Studies in Malaysia, also showed that perceived travel time was statistically significant. When women's characteristics were included in the analysis actual travel time also had small additional effects . (Laily et al. 1984).

In a review of data from five WFS surveys, however, Jones (1984) showed that perceived travel time to a general contraceptive source had little impact on the current use of efficient methods of contraception among women who knew of an outlet, although differences were significant for certain efficient methods in specific countries. She suggested that travel time's principal role may be determining whether a woman knows a source.

Rodriguez (1978), on the other hand, initially came up with very impressive results in his review of five WFS surveys. He found that among women who knew of a contraceptive source, the proportion currently using an efficient method increased as perceived travel time to the nearest outlet decreased. When he made adjustments for urban-rural residence, education and desire for more children, however, and assessed the difference in use between those who knew an outlet nearby and those who knew only a distant outlet, the strength of the association between perceived accessibility and current use was reduced. Rodriquez concluded that perceived access, education, and place of residence all had an important joint effect on contraceptive prevalence, and each of them had a significant additional effect, net of the others.

In a number of studies, the effect of access on use differed by ethnic group or place of residence. In Guatemala, for example, current use of modern

reversible methods declined among Latinos, but not among Indians, as the perceived time to a source increased (Chen et al. 1983). In Colombia, contraceptive use, pill use and sterilization all declined sharply among rural women as travel time increased, while among urban women, there was a slight decrease in contraceptive use, a large decline in pill use and no effect on sterilization. In Thailand, on the other hand, travel time had no impact on contraceptive prevalence or pill use among rural women, but the number of sterilizations increased with travel time; for urban women, increased travel time resulted in a slight decline in contraceptive prevalence, but it had almost no impact on use of the pill or sterilization (Cornelius and Novak 1983). In another study of Colombia, perceived travel time made little difference in current use among rural and urban Colombian women once an outlet was known, unless the outlet was perceived to be more than 90 minutes away; at that point contraceptive prevalence declined substantially (Pebley and Brackett 1982).

In three of the four case studies we looked at that used actual travel time as a measure of access, the effect on contraceptive use was mixed; in the other, this measure was not significant or related. In Mexico, actual travel time increased the index of effective contraceptive use [4], although not significantly for women aged 35-49 (Hess et al. 1988). The presence or absence of a source within a radius of 30 minutes did not have a significant effect on use or method choice in Costa Rica (Hermalin et al. 1988), but for women aged 30-49, natural log of time to the nearest family planning outlet in minutes had a significant and strong negative impact on use of chemical and surgical methods over barrier and traditional methods, and a marginal positive influence on the use of barrier and traditional methods over nonuse.

Two studies from Thailand reached different results: one found that the effect of actual travel time to the nearest district health center on current use was neither evident nor significant (Chamrathrithirong and Kamnuansilpa 1986); the other showed that actual travel time to each major type of outlet (considered

simultaneously) had a strong negative association with use of contraception for women in villages associated with the least accessibility; travel time to only the nearest outlet did not have an association (Chayovan et al. 1984).

Distance to a source is another way to measure access, but many investigators consider it an unsatisfactory approach because distance alone does not reveal how much time and energy women have to expend traveling to the outlet (it provides no information, for example, on mode of transportation to the source), and respondents are frequently unable to estimate distance, which may explain why the seven studies using distance-to-source measures we examined used actual measures. (Some included both distance and travel time.) Only one of the studies found a significant relationship between distance and use: In Bangladesh, rural women living 3-4 miles away from a clinic were significantly more likely to be users than those living five miles away; however, they were also more likely to be users than those living within two miles of a clinic (Ahmed (1987).

In the Philippines, the results were mixed; the relationship between distance and use was significant only for the segment of the population with the least access to family planning clinics. Residents of communities without a clinic in or near town were significantly less likely to be current users (Engracia et al. 1984).

Three studies of Thailand produced varying results. Chamrathrithirong and Kamnuansilpa (1984) reported that the effect of distance to the nearest health center on current use was neither evident nor significant. However, Entwisle and her colleagues (1984) found that the effect varied with age: for 15-24 year olds actual distance was not statistically significant, though it accentuated the positive effects of education on the likelihood of current use of efficient methods; for 25-34 year olds there were strong effects for availability on use when it interacted with a desire for no more children; and among 35-44 year olds,

distance had strong additive effects on use, but no statistically significant interactive effects. Chayovan et al. (1984) reported that in 1972, distance to the nearest outlet had no effect on current use, and that in 1979 there was a curvilinear relationship (an inverted u-shape). However, when the access measure was an index of distance to the major types of outlets simultaneously, rather than just to the nearest outlet, there was a strong negative association between distance and use of contraception in both 1972 and 1979.

Second Generation Issues

To address second generation policy issues, one needs more detailed measures of the availability of services. The number and type of personnel, density of service providors and the costs of contraceptives have all been studied to address these policy issues.

•Access to personnel-Four studies, of the 49 reviewed, included access to personnel, for example, the number of family planning workers in the community or number of visits by workers, as an access measure. In the Philippines, the frequency of a midwife's visits to a supply point had a significant and positive impact on clinical measures of contraceptive prevalence (Laing 1981). Actual frequency of mobile team visits had a strong effect on IUD use in Indonesia, but the actual number of clinical personnel negatively affected use of program contraceptives (modern methods), possibly because of low variability and low density values and program response efforts (Molyneaux et al. 1989)

In Egypt, the number of medical family planning workers had little effect on use, but the actual number of family planning extension workers serving a village made current contraceptive use more likely among women over age 25 (Entwisle et al. 1984). On the other hand, according to Easterlin and his colleagues (1988) neither family planning nor medical personnel in Egypt had a significant relationship with use, although actual availability of qualified midwives had a significant (but weak) positive association with time since first use.

•Number of outlets-In all six case studies we reviewed that used number of family planning outlets as a measure of access, its relationship to contraceptive use was significant. In Laing's study of the Philippines, the number of family planning clinics, hospitals and health stations had a significant positive impact on clinic measures of prevalence (1981), and in Egypt, the number of pharmacies was significant in predicting use among younger women (Entwisle et al 1984). Chamrathrithirong and Kamnuansilpa's study of Thailand (1984) also found that the number of contraceptive outlets in a village had an independent and significant effect on current use. In all age groups, the percentage using family planning rose with the increase in the actual number of outlets. (6) In Mexico, Korea, and Bangladesh, the number of contraceptive sources available either within the community or within five kilometers had a statistically significant positive effect on contraceptive use (Tsui et al. 1981).

•Costs of contraception-As with other measures of access, the findings on the relationship between prices of contraceptives and use of family planning varied from study to study. In Thailand, the free pill program appears to have spurred a substantial increase in use of oral contraceptives (Knodel et al. 1984); however, a subsequent study noted that since demand for all forms of contraception rose in Thailand during this same period, it is difficult to assess the marginal effect on use of the reduction of the fee for the pill from US$0.25 to zero (Lewis 1986).

On the other hand, a study based on a survey conducted eight years after implementation of the free pill policy, found that use of the pill, sterilization, and the IUD was relatively insensitive to price change. The study also revealed similar findings about use of the pill and the IUD in the Philippines and the pill in Jamaica. The effect of time costs (travel and wait) on the probability that a particular method would be chosen in Thailand and the Philippines was small, but it was statistically significant and negatively related to the method choice (the greater the time cost, the lesser the

probability that a particular method would be chosen over others). In Jamaica; time cost did not appear to influence the method choice (Schwartz et al. 1989). After reviewing a number of studies that assessed the relationship between price and contraceptive demand, Lewis (1986) concluded that where moderate prices and free products are provided through similar, known outlets, demand is not very different for free and low-priced contraceptives. She cautioned, however, that none of the studies she reviewed controlled for access costs or adequately for socioeconomic characteristics. In addition, they focused exclusively on the pill, and did not consider the availability of alternative methods or examine the role of price in contraceptive preferences across methods. Lewis also reviewed four cases that assessed the effect of price changes of contraceptives on use; three found that decreases in price resulted in dramatic increases in demand and one found no relationship between price change and use.

The Dependent Variable

The measurement of the dependent variable, contraceptive use, is another matter of discussion in the literature on the effect of access on use. Ever use, current use, and years since first use have all been employed, as have more indeterminate concepts such as intention to use. As patterns of use have become more variegated and with the realization that access has differential effects depending on method, use of specific methods has become more common as a dependent variable.

To explore whether the relationship between access and use is influenced by the particular dependent variable employed, we examined case study findings for the effect of access on five different measures of use: use/nonuse of contraception; use/nonuse of modern methods; use/non use of traditional methods; method choice; and intention to use. Sixteen (or 57 percent) of the twenty-eight studies examining the relationship between access and use/nonuse of contraceptive methods had significant or related findings; that is, as access increased so did use of family planning. Of the twenty-two studies focusing on use of modern

methods, five, or 23 percent, reported results that were significant or related. The small totals in the other three categories make it impossible to draw any conclusions about the statistical significance of the pattern.

Other Factors

Other factors that could possibly influence the relationship between access and use include the country's level of contraceptive use, the proportion of the women in the country who want no more children, and the country's family planning program effort, based on the index constructed by Lapham and Mauldin (1985). None of these factors was found to significantly affect the relationship between access and use when the studies were cross tabulated by these factors and the nature of the findings. In addition, there were no significant differences according to the sample size used in the study, and no generalizations can be made about the relationship of the methodology used in case studies and the effect of access on use.

Conclusions and Directions for Future Research

The literature on the relationship between access to contraception and use raises a number of important policy and methodological issues that need to be addressed. In Africa, which began to experience a reduction in fertility only in the last five years, the degree to which family planning programs can stimulate fertility decline, and under what circumstances they can do so, continues to warrant study -- a need that is underscored by the fact that only one of the studies cited in Table 2 was undertaken in Africa. There and elsewhere throughout the developing world, attention also needs to be paid to the question of what specific elements of program design will be effective in specific environments. The effect on contraceptive use of targeting of family planning services to certain segments of the population is a major question that needs to be studied. This is particularly important given the desire to achieve better access for the poor.

Our review of the case studies provides highly inconclusive results on the question of whether the choice of a particular measure of access, or methods of estimating those measures, influences the findings of the relationship. Systematic patterns of relationships between measures of access and use were not discernible. The use of perceived or actual measures of access did not have a significant effect on the results, and, as Table 3 shows, the evidence on whether the choice of independent variable -- travel time, distance to source, access to personnel, density of sources, and costs --influences the results is also inconclusive. However, the fact that all of the findings for the density of outlets were significant suggests that access measures that take into account distance and/or travel time to a number of outlets might show a greater relationship with contraceptive use than those focusing solely on the nearest outlet.

The analysis of other factors influencing the relationship between access and use (dependent variable used, level of contraceptive use in the country, demand for no more children, methodology, and family planning program effort) also did not reveal any important associations. However, the methodology we used to examine these associations was very unsophisticated; more complex analytical techniques applied to a larger number of case studies is clearly needed before statistical generalizations can be made.

A number of studies in our review indicated that access had a greater impact on use for people who live in communities and villages without a nearby source of contraceptives. In other words, differences in travel time or distance to an outlet may not be as important an influence on contraceptive use once a threshold level of access has been reached for a population. However, when we compared the results of the relationship between access and use in fifteen of the case studies with the 1982 accessibility score Lapham and Mauldin accorded to the country in each of the studies, there was no discernible pattern. Countries with lower access levels did not have more significant or related findings than those

with higher access levels. Nonetheless, the pervasiveness of a threshold effect, wherein access has a significant effect on use only beyond a certain distance or travel time, merits further study.

In considering the results of the case studies we reviewed, a number of issues need to be borne in mind. The first is the quality of the data used. It is generally agreed that the quality of WFS community data was poor because little attention was paid to training those who were to collect it, and information sources within the community were not always well-informed. Questionnaire design must be specific to the local environment; attention must be given to training; and knowledgeable informants must be identified who can report on access. Moreover, given the problems with the perceived and actual measures of access used in the WFS and CPS surveys (such as inaccuracy of data), it is unclear how much faith one can have in the results obtained by studies employing their method of estimation.

A second point, which has been made by Anderson and Cleland (1984), is that the relationship between measures of access and use may be of a very different nature than is commonly expected: rather than the location of family planning outlets influencing demand and use of contraceptives, it could be that demand for contraceptives determines the location of outlets. Third, the fairly homogeneous nature of rural areas, which were the focus of many of the studies, may have made it difficult to find significant effects for the community (actual) measures of access.

The appropriateness of the models used in the studies is another issue. Bilborrow and Guilkey (1988) point out that efforts to assess the effects of community factors, such as the accessibility of family planning outlets within or near communities, have generally been inadequate because most models perceive community factors (such as the density of outlets or distance or travel time to outlets from a community) as being simply additive to individual factors;

community variables have simply been added to a single equation function relating individual/household factors to observed fertility. They believe that this reflects an inadequate conceptualization of community effects; they see community factors as (recursively) influencing individual/household variables that in turn affect the individual woman's fertility, or, in this case, fertility regulation. Thus, consideration needs to be given to how the community factors may influence or operate through individual/household factors.

Another issue that merits attention when considering the results of these studies is the kind of access measures used. Chayovan et al. (1984) argue, correctly, that despite the plethora of studies on the relationship between access and use, little consideration has been devoted to developing appropriate measures of accessibility. Insufficient effort has been made to incorporate other facets of access into measures of accessibility, for example, the dates when family planning facilities first became available in a community, the kinds of methods available, and the regularity of their availability. The almost exclusive emphasis on the number of miles or minutes to service outlets neglects other important aspects of access, such as the quality of the services offered. It is the limitations of the WFS and CPS surveys, and the necessary reliance of most researchers on these data bases, that no doubt explains, at least partially, the inadequacy of access measures used to date.

The new Demographic and Health Surveys (DHS) Service Availability Questionnaire promises to provide a much more useful database for future studies. It includes questions on distance and travel time to various facilities; the methods available at those facilities; the costs, if any, of those methods; the days and hours of service; and the personnel available. Thus far, the DHS questionnaire has only been employed in a few countries.

Outside of Africa, the substantial number of country-specific and cross-national studies provide statistical analyses of the relationship between

access and contraceptive use in developing countries. What is required at this point are case studies that integrate more qualitative examinations of the relationship between access and use with analyses of survey data assessing statistical relationships. One promising approach would be to first conduct an ethnographic type of study of the relationship between access and use in a small number of communities in a country, and then to undertake an analysis of survey data at the country-wide level. The original qualitative study would, on its own, constitute an important part of the analysis, providing a rich database on a few communities. It would also be used to inform the kinds of questions posed in the survey, and to provide a basis for deciding which variables ought to be included in equations for statistical analyses of the relationship between access and use. This statistical analysis would be necessary to determine whether the relationships observed in the selected communities were statistically generalizable to the nation as a whole, or to specific groups within the nation.

For existing data sets, the crucial issue is to provide a coherent theoretical framework that allows for the appropriate statistical specification. Without such a model, it will be impossible to judge the full effects of access and, more importantly, impossible to address serious policy issues such as targeting of services. In a several recently completed papers, this has been attempted (See Cochrane and Guilkey (1991)). More comprehensively designed questionnaires, such as the DHS Service Availability Module, should provide valuable information to the correct specification of theoretical models and answers to difficult policy questions.

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NOTES

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2. The argument was that if the demand for fertility reduction was sufficiently strong, people would either resort to later marriage, traditional practices of abstinence or withdrawal and abortion, or be willing to go long distances to obtain what contraceptives were available.

3. For example, investigators compared contraceptive use in a community or region that had a family planning program with use in a community or region that, by chance, did not have a family planning program.

4. The term "related" refers to findings of a relationship between the independent and dependent variables, but one that was not reported by the author or by a reviewer in terms of statistical significance. Mixed findings are those in which certain measures of access in a study are significant or related, while others are not, or there is a relationship between an access measure and use only for certain segments of the population, or only beyond a certain threshold of time or distance.

5. Effective use combines the use of a contraceptive with a measure of the effectiveness of that method so that modern methods get a higher score than traditional methods.

6. The authors cautioned, however, that the relationship may have been curvilinear; current use rose as the number of sources increased from one to two and from three to four, but there was a decline in use when the number of sources rose from two to three.

References

Ahmed,Bashir. 1987. "Determinants of Contraceptive Use in Rural Bangladesh: The Demand for Children, Supply of Children, and Costs of Fertility Regulation." Demography 24(3).

Bilsborrow, R., and D. Guilkey. 1987. Community and Institutional Influence on Fertility: Analytical Issues. Population and Labour Policies Programme Working Paper no. 157. Geneva: International Labour Office.

Boulier, B. 1985. "Family Planning Programs and Contraceptive Availability: Their Effects on Contraceptive Use and Fertility." In N. Birdsall, ed. The Effects of Family Planning Programs on Fertility in the Developing World. World Bank Staff Working Paper no. 677. Washington, D.C.

Casterline, J, B. Entwisle, and A. Hermalin. 1988. "Guidelines for the Conduct of Multilevel Analysis of Community and Family Planning Program Effects." In Effects of Contextual Factors on Fertility Regulation in Costa Rica. Final Report, NICHD Contract NO1 HD-62902 (Oct.). Washington, D.C.

Chamrathrithirong, A., and P. Kamnuansilpa. 1986. "Contraceptive Practice and Fertility in Thailand: Results of the Third Contraceptive Prevalence Survey." Studies in Family Planning 76:278-287.

Chayovan, N., A. Hermalin, and J. Knodel. 1984. "Measuring Accessibility to Family Planning Services in Rural Thailand. Studies in Family Planning 15(5).

Chen, C., G. Santiso, and L. Morris. (1983). "Impact of Accessibility of Contraceptives on Contraceptive Prevalence in Guatemala." Studies in Family Planning 14(11)

Chidambaram, V.C., and L.V.T. Mastropoalo. 1982. "the Role of WFS Data in the Analysis of Family Planning Programs. In Albert J. Hermalin and Barbara Entwisle, eds. The Role of Surveys in the Analysis of Family Planning Programs. Leige: Ordina Editions.

Cornelius, R., and J. Novak. 1983. "Contraceptive Availability and Use in Five Developing Countries." Studies in Family Planning 14(12).

Engracia, L., D. Martel, and L. Nartatez. 1984. "Accessibility of Family Planning Community Development and the Impact on the Birth Rate of Rural Philippines." In Luisa T. Engracia, Corazon Mejia-Raymundo, and John Casterline, eds. Fertility in the Philippines: Further Analysis of the Republic of the Philippines Fertility Survey 1978. Voorburg, Netherlands: International Statistical Institute.

Entwisle, B., A. Hermalin, P. Kamnuansilpa, and A. Chamrathrithirong. 1984. "Multilevel Model of Family Planning Availability and Contraceptive Use in Rural Thailand." Demography 21(4).

Hermalin, A.I. 1983. "Fertility Regulation and Its Costs: A Critical Essay." In R.A. Bulatao et al. (eds.). Determinants of Fertility in Developing Countries: A Summary of Knowledge. National Research Council, Panel on Fertility Determinants, New York: Academic Press.

Hermalin, A.I., A. Riley, and L. Rosero-Bixby. 1988. "A Multi-Level Analysis of Contraceptive Use and Method Choice in Costa Rica." In Effects of Contextual Factors on Fertility Regulation in Costa Rica and Egypt. Final Report, NICHD Contract NO1 HD-62902 (Oct.). Washington, D.C.

Hess, P., R. Bilsborrow, and A. Tsui. 1988. "Linkages Between the Demand for Children, Contraceptive Use and Fertility: Preliminary Evidence from Mexico and Unresolved Issues." Paper to be presented at the International Population Conference, Sept. 1989. New Delhi.

Jones, E. 1984. "The Availability of Contraceptive Services." WFS Comparative Studies 37. London: World Fertility Survey.

Knodel, J., T. Bennet, and S. Panyadilok. 1984. "Do Free Pills Make a Difference?" Thailand's Experience: International Family Planning Perspectives 10.3.

Laily, N., T. Tan, N. Tey, and Y. Takeshita. 1984. "Perception of Family Planning Service Availability in Rural Malaysia." In J. Ross and R. MacNamara, eds. Survey Analysis for the Guidance of Family Planning Programs. Liege: Ordina Editions.

Laing, J. 1981. "Effects of the Philippine Family Planning Outreach Project on Contraceptive Prevalence: A Multivariate Analysis." Studies in Family Planning 12(11).

Lapham, Robert J., and W.Parker Mauldin. 1985. "Contraceptive Prevalence: The Influence of Organized Family Planning Programs." Studies in Family Planning 16(3).

Lewis, M. (1986). "Do Contraceptive Prices Affect Demand?" Studies in Family Planning 17(3).

Molyneaux, J., C. Lerman, E. Srihartati, P. Pandi, and S. Wibisono. 1989. "Correlates and Determinants of Contraceptive Method Choice in Indonesia." Paper presented at the Annual Meeting of the Population Association of America, March. Baltimore.

Mauldin, W. Parker, and Robert J. Lapham. 1982. "Measuring the Input of Family Planning Programs." In A.I. Hermalin and B. Entwisle, eds. The Role of Surveys in the Analysis of Family Planning Programs, pp.215-240. Liege: Ordina Editions.

Pebley, A., and J. Brackett. 1982. "The Relationship of Contraceptive Availability to Contraceptive Use." International Family Planning Perspectives 8(3).

Rodriquez, G. 1978. "Family Planning Availability and Contraceptive Practice." International Family Planning Perspectives 4(4).

Schwartz, B. J. Akin, D. Guilkey, and V. Paqueo. 1989. "The Effect of Contraceptive Prices on the Choice of Contraceptive Method: A Three country Comparison." In R. Bulatao and J. Palmore, eds. Factors in Method Choice in Asia and the United States. Honolulu: Westview Press.

Tsui, A. 1985. "Community Effects on Contraceptive Use." In J.B. Casterline, ed. The Collection and Analysis of Community Data. Voorburg: International Statistical Institute.

_____, D. Hogan, J. Teachman,a and C. Welti-Chanes. 1981. "Community Availability of Contraceptives and Family Limitation." Demography 18(4).

_____ and L.H. Ochoa. 1989. "Service Proximity as a Determinant of Contraceptive Behavior: Evidence from Cross-National Studies of Survey Data. Paper prepared for the IUSSP Seminar on "The Role of Family Planning Programs as a Fertility Determinant." June 26-30. Tunis.

Tuladhar, J. 1987. "Effect of Family Planning Availability and Accessibility on Contraceptive Use in Nepal." Studies in Family Planning 18(1).

TABLE 1: CONCLUSIONS OF LITERATURE REVIEWS ON THE EFFECT OF ACCESS ON CONTRACEPTIVE USE

Tsui (1985): "(1) Studies performed with communities as the units of analysis do find significant effects of level of development on use. (2) Studies performed with individuals as units of analysis and community variables added: (a) find generally weak community development effects; (b) find significant effects usually from community or individual measures of contraceptive availability."

Boulier (1985): "While some studies show that increased availability has effects on contraceptive use and fertility even at very low levels of social and economic development, there is little evidence on the distributional consequences of increased access to family planning services and the socioeconomic circumstances under which family planning inputs would have the greatest marginal impact on contraceptive use and fertility decline."

Bilsborrow and Guilkey (1987): "The most common and simple approach sees community factors as being simply additive to individual factors: If, empirically, the added community factors are statistically significant, meaningful, separate areal effects are said to exist. If not, they are seen as unimportant. Much of the existing literature in fact finds insignificant effects. But we believe this reflects inadequate conceptualization of community effects..."

Tsui and Ochoa (1989): "The studies vary expectedly in the strength of service proximity's effect and degree to which they identify the conditions under which socioeconomic factors modify it. However, selecting only those studies which use objective measures and have similar structural models still leads to the finding that service availability increases the likelihood of contracepting."

TABLE 2

FINDINGS ON EFFECT OF ACCESS ON CONTRACEPTIVE USE (USE/NON), OR ON USE OF MODERN CONTRACEPTIVE METHODS (USE/NON) a

COUNTRY / DATE	AUTHOR / DATE	MEASURE OF AVAILABILITY: PERCEIVED (P) / ACTUAL (A)	FINDINGS: SIGNIFICANT (S) / RELATED (R) b / MIXED (M) / NOT SIGNIFICANT / NOT RELATED (NS/NR)
BANGLADESH	B. AHMED	A	S
1978	1987		
GUATEMALA	C. CHEN ET AL	P/A	M
1978	1983		
THAILAND	R. CORNELIUS ET AL	P	M
1981	1983		
NEPAL	" "	P	M
1981	" "		
COSTA RICA	" "	P	M
1981	" "		
HONDURAS	" "	P	M
1981	" "		
COLOMBIA	" "	P	R
1980	" "		
EGYPT	B. ENTWISLE ET AL	A	M
1980 & 1982	1984		
THAILAND	B. ENTWISLE ET AL	A	M
1981	1984		
COSTA RICA	A. HERMALIN ET AL	A	M
1981 & 1982	1988		
THAILAND	J. KNODEL ET AL	A	R
1974-1984	1984		
PHILIPPINES	J. LAING	A/P	S
1980	1981		
KOREA	A. PEBLEY ET AL	P	S
1974-77 ...	1982		
PHILIPPINES	" "	P	S
1978 OR LATER			
MEXICO	" "	P	S
1974-77...			
PANAMA	" "	P	S
1974-77...			
COLOMBIA	" "	P	S
1974-77...			
COSTA RICA	" "	P	M
1974-77...			
KENYA	" "	P	S
1974-77...			
PHILIPPINES	B. SCHWARTZ ET AL	P	S ..
1978	1986		
JAMAICA	" "	P	M ..
1984			
THAILAND	" "	P	S ..
1984			
KOREA	A. TSUI ET AL	A	S
1974	1981		
MEXICO	" "	A	S
1976			

TABLE 2

BANGLADESH	" "	A	S
1975			
NEPAL	J. TULADHAR	S	S
1981	1987		
COLOMBIA	A. TSUI	A	M
1986	1989		
GUATEMALA	" "	A	M
1987			
ECUADOR	" "	A	NS/NR
1988			
DOMINICAN	" "	A	M
REPUBLIC			
1987			
THAILAND	CHAMRATHIRONG ET AL.	S/A	M
1981	1984		
MALAYSIA	LAILY ET AL	S/A	M
1974	1984		
THAILAND	CHAYOVAN ET AL	A	M
1972 & 1979	1984		
MEXICO	HESS ET AL	A	M
1982	1988		
KOREA	PALMORE ET AL	S	M
1975 AND 1980	1987		
PHILIPPINES	ENGRACIA ET AL	A	R
1972 AND 1978	1984		
INDONESIA	MOLYNEAUX ET AL	A/P	M **
1987	1989		
MALAYSIA	DAVANZO	A	R
1976-1977	1988		
COLOMBIA	RODRIGUEZ	P	M
1976	1978		
COSTA RICA	" "	P	NS/NR
1976			
KOREA	" "	P	M
1974			
MALAYSIA	" "	P	R
1974			
NEPAL	" "	P	R
1976			
INDIA	G. SIMMONS	A	R
1966	1971		
EGYPT	J. CASTERLINE ET AL	P	M
1980	1988		
EGYPT	R. EASTERLIN ET AL	A	M
1980	1988		
COLOMBIA	R. EASTERLIN ET AL	P	S
1976	1985		
BANGLADESH	M. ALAUDDIN	A	M
1976	1979		
MALAYSIA	V. PALAN ET AL	A	M
1974	1979		
TOTAL CASES	49		

* SOME STUDIES REPORTED ON OVERALL PREVALENCE, OTHERS REPORTED ON CLINICAL PREVALENCE

** THE FINDINGS FROM THESE CASES DO NOT REFER TO USE AND NONUSE, BUT TO EFFECT OF ACCESS ON METHOD CHOICE

= RELATED (R) REFERS TO A RELATIONSHIP BETWEEN THE INDEPENDENT AND DEPENDENT VARIABLES BUT NOT NECESSARILY TO A STATISTICALLY SIGNIFICANT RELATIONSHIP AS THESE STUDIES OR THE AUTHOR REVIEWING THEM DID NOT REPORT THEIR FINDINGS IN TERMS OF STATISTICAL SIGNIFICANCE

** THE SURVEYS FOR THESE CASE STUDIES TOOK PLACE SOMETIME BETWEEN 1974-77.

TABLE 3

FINDINGS ON THE RELATIONSHIP BETWEEN PARTICULAR MEASURES OF ACCESS AND USE						
FINDINGS	MEASURES OF ACCESS					
	TRAVEL TIME	DISTANCE	ACCESS TO PERSONNEL	DENSITY OF SOURCES	COSTS (PRICE AND TIME COSTS)	TOTAL
SIGNIFICANT	7	1	1	6	2	17
RELATED	3		1		6	10
MIXED	12	4	2		3	21
NS/NR	3	2			4	9
TOTAL	25	7	4	6	15	57

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